

=> Index chemistry bioscience dissabs  
 FILE 'ENCOMPLIT2' ACCESS NOT AUTHORIZED  
 FILE 'DRUGMONOG' ACCESS NOT AUTHORIZED

COST IN U.S. DOLLARS SINCE FILE TOTAL  
 FULL ESTIMATED COST ENTRY SESSION  
 0.21 0.21

INDEX 'AGRICOLA, ALUMINIUM, ANABSTR, APOLLIT, AQUALINE, AQUIRE, BABS,  
 BIOCOMMERCE, BIOTECHNO, CABA, CAOLD, CAPLUS, CBNB, CEABA-VTB, CEN, CERAB,  
 CIN, COMPENDEX, CONFSCI, COPPERLIT, CORROSION, DISSABS, ENCOMPLIT,  
 FEDRIP, GENBANK, INSPEC, INSPHYS, INVESTTEXT, ...'

ENTERED AT 18:38:39 ON 29 SEP 2005

98 FILES IN THE FILE LIST IN STNINDEX

Enter SET DETAIL ON to see search term postings or to view  
 search error messages that display as 0\* with SET DETAIL OFF.

=> s (rhodium or ruthenium or palladium) (P) ((complex? or coordinat? or bind? or bound) (s)  
 (myoglobin or hemoglobin or hemeoxygenase catalase or cytochrome or ferritin ))

2 FILE AGRICOLA  
 0\* FILE ALUMINIUM  
 1 FILE ANABSTR  
 0\* FILE APOLLIT  
 0\* FILE AQUALINE  
 32\* FILE BABS  
 0\* FILE BIOCOMMERCE  
 34\* FILE BIOTECHNO  
 12 FILE CABA

10 FILES SEARCHED...

0\* FILE CAOLD  
 213 FILE CAPLUS  
 0\* FILE CBNB  
 2\* FILE CEABA-VTB  
 3 FILE CEN  
 1\* FILE CIN  
 14\* FILE COMPENDEX  
 3 FILE CONFSCI  
 0\* FILE COPPERLIT  
 0\* FILE CORROSION  
 57 FILE DISSABS  
 0\* FILE ENCOMPLIT  
 8\* FILE FEDRIP

25 FILES SEARCHED...

9\* FILE INSPEC  
 1\* FILE INSPHYS  
 1 FILE IPA  
 32 FILE JICST-EPLUS  
 0\* FILE KOSMET  
 0\* FILE METADEX  
 1 FILE NIOSHTIC  
 1\* FILE NTIS

35 FILES SEARCHED...

42\* FILE PASCAL  
 6 FILE PROMT  
 0\* FILE RAPRA  
 96 FILE SCISEARCH

43 FILES SEARCHED...

0\* FILE WATER  
 0\* FILE WELDASEARCH  
 0\* FILE WSCA  
 0\* FILE ADISNEWS  
 0\* FILE ANTE  
 2 FILE AQUASCI  
 2\* FILE BIOENG  
 86 FILE BIOSIS  
 6\* FILE BIOTECHABS

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6* FILE BIOTECHDS
8 FILE CANCERLIT
59 FILES SEARCHED...
    1 FILE DDFU
64 FILES SEARCHED...
    1 FILE DRUGU
   63 FILE EMBASE
  57* FILE ESBIOBASE
   0* FILE FOMAD
   0* FILE FOREGE
   0* FILE FROSTI
   0* FILE FSTA
    1 FILE HEALSAFE
   14 FILE IFIPAT
75 FILES SEARCHED...
    32 FILE LIFESCI
    64 FILE MEDLINE
    0* FILE NUTRACEUT
    0* FILE PHARMAML
    23 FILE TOXCENTER
   59 FILE USPATFULL
    1 FILE USPAT2
94 FILES SEARCHED...
    19 FILE WPIDS
    19 FILE WPINDEX

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41 FILES HAVE ONE OR MORE ANSWERS, 98 FILES SEARCHED IN STNINDEX

L1 QUE (RHODIUM OR RUTHENIUM OR PALLADIUM) (P) ((COMPLEX? OR COORDINAT? OR BIND? OR BOUND) (S) (MYOGLOBIN OR HEMOGLOBIN OR HEMEOXYGENASE CATALASE OR CYTOCHROME OR FERRITIN ))

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=> d rank
F1      213  CAPPLUS
F2      96   SCISEARCH
F3      86   BIOSIS
F4      64   MEDLINE
F5      63   EMBASE
F6      59   USPATFULL
F7      57   DISSABS
F8      57*  ESBIOBASE
F9      42*  PASCAL
F10     34*  BIOTECHNO
F11     32   JICST-EPLUS
F12     32   LIFESCI
F13     32*  BABS
F14     23   TOXCENTER
F15     19   WPIDS
F16     19   WPINDEX
F17     14   IFIPAT
F18     14*  COMPENDEX
F19     12   CABA
F20     9*   INSPEC
F21     8    CANCERLIT
F22     8*   FEDRIP
F23     6    PROMT
F24     6*   BIOTECHABS
F25     6*   BIOTECHDS
F26     3    CEN
F27     3    CONFSCI
F28     2    AGRICOLA
F29     2    AQUASCI
F30     2*   CEABA-VTB
F31     2*   BIOENG
F32     1    ANABSTR
F33     1    IPA
F34     1    NIOSHTIC
F35     1    DDFU
F36     1    DRUGU

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F37 1 HEALSAFE  
F38 1 USPAT2  
F39 1\* CIN  
F40 1\* INSPHYS  
F41 1\* NTIS

=> FIL F1-5 F7 F11-12 F14-17 F19 F21  
COST IN U.S. DOLLARS

SINCE FILE ENTRY	TOTAL SESSION
8.85	9.06

FULL ESTIMATED COST

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FILE 'CANCERLIT' ENTERED AT 18:47:35 ON 29 SEP 2005

=> S 11 and phosphin?

L2 9 FILE CAPLUS  
L3 0 FILE SCISEARCH  
L4 0 FILE BIOSIS  
L5 0 FILE MEDLINE  
L6 0 FILE EMBASE  
L7 2 FILE DISSABS  
L8 0 FILE JICST-EPLUS  
L9 0 FILE LIFESCI  
L10 0 FILE TOXCENTER  
L11 0 FILE WPIDS  
L12 0 FILE IFIPAT  
L13 0 FILE CABA  
L14 0 FILE CANCERLIT

TOTAL FOR ALL FILES

L15 11 L1 AND PHOSPHIN?

=> S L1 and (hydrogenat? or reduc?)  
L16 80 FILE CAPLUS  
L17 41 FILE SCISEARCH  
L18 31 FILE BIOSIS  
L19 29 FILE MEDLINE  
L20 34 FILE EMBASE  
L21 32 FILE DISSABS  
L22 6 FILE JICST-EPLUS  
L23 9 FILE LIFESCI  
L24 9 FILE TOXCENTER  
L25 9 FILE WPIDS  
L26 5 FILE IFIPAT  
L27 2 FILE CABA  
L28 1 FILE CANCERLIT

TOTAL FOR ALL FILES

L29 288 L1 AND (HYDROGENAT? OR REDUC?)

=> S L1 and hydrogenat?

L30 3 FILE CAPLUS  
L31 1 FILE SCISEARCH  
L32 1 FILE BIOSIS  
L33 0 FILE MEDLINE  
L34 0 FILE EMBASE  
L35 1 FILE DISSABS  
L36 0 FILE JICST-EPLUS  
L37 0 FILE LIFESCI  
L38 0 FILE TOXCENTER  
L39 0 FILE WPIDS  
L40 2 FILE IFIPAT  
L41 0 FILE CABA  
L42 0 FILE CANCERLIT

TOTAL FOR ALL FILES

L43 8 L1 AND HYDROGENAT?

=> dup rem L29

PROCESSING COMPLETED FOR L29

L44 161 DUP REM L29 (127 DUPLICATES REMOVED)

=> D L15 1-11 ibib abs

L15 ANSWER 1 OF 11 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2005:185451 CAPLUS

DOCUMENT NUMBER: 142:276006

TITLE: Preparation of a metal complex-protein composite for  
the use as a hydrogenation catalyst of an olefin

INVENTOR(S): Watanabe, Yoshihito; Ueno, Takafumi; Abe, Satoshi

PATENT ASSIGNEE(S): Nagoya Industrial Science Research Institute, Japan

SOURCE: U.S. Pat. Appl. Publ., 7 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2005049405	A1	20050303	US 2004-790060	20040302
JP 2005075799	A2	20050324	JP 2003-310085	20030902
PRIORITY APPLN. INFO.:			JP 2003-310085	A 20030902

OTHER SOURCE(S): MARPAT 142:276006

AB The metal complex-protein composite of the present invention includes a protein having a cavity and a metal complex and has a specific structure that the metal complex is received in the cavity of the protein. Here the metal complex is prepared by complexation of a metal ion, which is selected

among the group consisting of rhodium, ruthenium, and palladium, with a ligand. The metal complex-protein composite of the invention functions as a hydrogenation catalyst of an olefin in water. The metal complex-protein composite is thus effectively applied to hydrogenation of water-soluble substrates and has environmental advantages over organic solvents. Preparation of rhodium complexes-apomyoglobin composites and their use as hydrogenation catalysts of olefins is disclosed.

L15 ANSWER 2 OF 11 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:734455 CAPLUS

DOCUMENT NUMBER: 142:168270

TITLE: Palladium(II) and platinum(II) complexes with mixed ligands of tertiary monophosphines and 5-phenyl-1,3,4-oxadiazole-2-thione or 4,5-diphenyl-1,2,4-triazole-3-thione

AUTHOR(S): Qadir, Adnan M.; Abdullah, Ali I.; Al-jibor, Subhi A.; Al-Allaf, Talal A. K.

CORPORATE SOURCE: Department of Chemistry, College of Basic Sciences, Applied Science University, Amman, 1193, Jordan

SOURCE: Asian Journal of Chemistry (2004), 16(2), 1181-1188

CODEN: AJCHEW; ISSN: 0970-7077

PUBLISHER: Asian Journal of Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Several new palladium(II) and platinum(II) complexes containing two types of ligands: tertiary monophosphines (L) and 5-phenyl-1,3,4-oxadiazole-2-thione (HA) or 4,5-diphenyl-1,2,4-triazole-3-thione (HB) were prepared. The so obtained complexes trans-[PdA<sub>2</sub>L<sub>2</sub>], trans-[PdB<sub>2</sub>L<sub>2</sub>] and cis-[Pta<sub>2</sub>L<sub>2</sub>] were characterized by elemental anal., IR, UV-visible, <sup>31</sup>P NMR spectroscopy, molar conductance and magnetic susceptibility measurements.

REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 3 OF 11 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:156420 CAPLUS

DOCUMENT NUMBER: 141:174283

TITLE: A series of vinylidene-, vinyl-, carbene- and carbyneruthenium(II) complexes with [Ru(PCy<sub>3</sub>)<sub>2</sub>] and [Ru(PiPr<sub>3</sub>)<sub>2</sub>] as molecular building blocks

AUTHOR(S): Jung, Stefan; Ilg, Kerstin; Brandt, Carsten D.; Wolf, Justin; Werner, Helmut

CORPORATE SOURCE: Institut fuer Anorganische Chemie der Universitaet Wuerzburg, Wuerzburg, 97074, Germany

SOURCE: European Journal of Inorganic Chemistry (2004), (3), 469-480

CODEN: EJICFO; ISSN: 1434-1948

PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 141:174283

AB The hydrido(vinylidene) complexes [RuHCl(:C:CHR)(L)<sub>2</sub>] (R = H, tBu, Ph; L = PCy<sub>3</sub>, PiPr<sub>3</sub>) undergo metathesis reactions in the presence of KX (X = I, NCO, OPh, CH<sub>3</sub>CO<sub>2</sub>, CF<sub>3</sub>CO<sub>2</sub>) to give the substitution products [RuHX(:C:CHR)(L)<sub>2</sub>] in good to excellent yields. Treatment of [RuHX(:C:CHR)(L)<sub>2</sub>] with HBF<sub>4</sub> in di-Et ether affords the cationic carbyneruthenium(II) derivs. [RuHX(.tplbond.CCH<sub>2</sub>R)(OEt<sub>2</sub>)(L)<sub>2</sub>]BF<sub>4</sub> and [RuH( $\kappa$ 2-O<sub>2</sub>CCH<sub>3</sub>).tplbond.CCH<sub>2</sub>R](L)<sub>2</sub>]BF<sub>4</sub>. The reactions of [RuHCl(:C:CHR)(L)<sub>2</sub>] with MX [X = BF<sub>4</sub>, PF<sub>6</sub>, BPh<sub>4</sub>, B(Arf)<sub>4</sub>] in acetonitrile lead to the formation of cationic five- and six-coordinate vinylruthenium(II) compds. of which [Ru(CH:CH<sub>2</sub>)(CH<sub>3</sub>CN)<sub>2</sub>(PCy<sub>3</sub>)<sub>2</sub>]BPh<sub>4</sub> has been characterized by x-ray crystallog. The starting material [RuHCl(:C:CHPh)(PiPr<sub>3</sub>)<sub>2</sub>] reacts with CO to give [RuCl(CH:CHPh)(CO)<sub>2</sub>(PiPr<sub>3</sub>)<sub>2</sub>] and with N<sub>2</sub> to produce [RuCl(CH:CHPh)(N<sub>2</sub>)(PiPr<sub>3</sub>)<sub>2</sub>] (crystal structure). Protonation of [Ru(CH:CH<sub>2</sub>)(CH<sub>3</sub>CN)<sub>2</sub>(PCy<sub>3</sub>)<sub>2</sub>]X and [Ru(CH:CHPh)(CH<sub>3</sub>CN)<sub>3</sub>(PiPr<sub>3</sub>)<sub>2</sub>]X with HBF<sub>4</sub> and HB(Arf)<sub>4</sub> yields the dicationic carbene ruthenium (II) complexes [Ru(:CHCH<sub>3</sub>)(CH<sub>3</sub>CN)<sub>2</sub>(PCy<sub>3</sub>)<sub>2</sub>]X<sub>2</sub> and [Ru(:CHCH<sub>2</sub>Ph)(CH<sub>3</sub>CN)<sub>3</sub>(PiPr<sub>3</sub>)<sub>2</sub>] [B(Arf)<sub>4</sub>]<sub>2</sub>, the latter of which eliminates

styrene to give [Ru(CH<sub>3</sub>CN)<sub>3</sub>(PiPr<sub>3</sub>)<sub>2</sub>][B(Arf)<sub>4</sub>]<sub>2</sub>.

REFERENCE COUNT: 40 THERE ARE 40 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 4 OF 11 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:682077 CAPLUS

DOCUMENT NUMBER: 138:347831

TITLE: Compounds of general interest.

Chloro(hydrotris(pyrazol-1-

yl)borato)bis(triphenylphosphine)ruthenium(II)  
{RuCl[κ<sub>3</sub>-HB(pz)<sub>3</sub>](PPh<sub>3</sub>)<sub>2</sub>} (pz = pyrazol-1-yl)

Hill, Anthony F.; Wilton-Ely, James D. E. T.;

Rauchfuss, Thomas B.; Schwartz, Daniel E.

AUTHOR(S): Department of Chemistry, Imperial College of Science, Technology and Medicine, London, SW7 2AY, UK

CORPORATE SOURCE: Inorganic Syntheses (2002), 33, 206-208

SOURCE: CODEN: INSYA3; ISSN: 0073-8077

PUBLISHER: John Wiley & Sons, Inc.

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 138:347831

AB RuCl[κ<sub>3</sub>-HB(pz)<sub>3</sub>](PPh<sub>3</sub>)<sub>2</sub> complex was synthesized on a large scale (10 g) and was characterized. The procedure is based on the reaction of dichlorotris(triphenylphosphine)ruthenium(II) with hydrotris(pyrazol-1-yl)borate K salt.

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 5 OF 11 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1999:639825 CAPLUS

DOCUMENT NUMBER: 131:345704

TITLE: The sting of the scorpion: a metallaboratrane

AUTHOR(S): Hill, Anthony F.; Owen, Gareth R.; White, Andrew J.

P.; Williams, David J.

CORPORATE SOURCE: Department of Chemistry, Imperial College of Science, Technology, and Medicine, London, SW72AY, UK

SOURCE: Angewandte Chemie, International Edition (1999), 38(18), 2759-2761

CODEN: ACIEF5; ISSN: 1433-7851

PUBLISHER: Wiley-VCH Verlag GmbH

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The novel ruthenaboratrane complex [Ru{B(mt)<sub>3</sub>}(CO)(PPh<sub>3</sub>)] (4, mt = 2-sulfanyl-1-methylimidazolyl) was prepared from the reaction of [Ru(CH<sub>2</sub>CHCPh<sub>2</sub>OH)Cl(CO)(PPh<sub>3</sub>)<sub>2</sub>] with Na[HB(mt)<sub>3</sub>] and characterized spectroscopically and by x-ray crystallog. (4·2CHCl<sub>3</sub>: triclinic, space group P.hivin.1, R1 = 0.049). The complex has a Ru→B bond of 2.161(5) Å, resulting in a tetrahedral geometry for boron, and ruthenium is octahedral. This complex is the first example of a poly(azolyl)borate ligand that undergoes B-H activation (stinging of the "scorpionate") to give this metallaboratrane structure.

REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 6 OF 11 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1998:184831 CAPLUS

DOCUMENT NUMBER: 128:270700

TITLE: Polyazolyl Chelate Chemistry. 6. Bidentate Coordination of HB(pz)<sub>3</sub> (pz = Pyrazol-1-yl) to Ruthenium and Osmium: Crystal Structure of [RuH(CO)(PPh<sub>3</sub>)<sub>2</sub>{κ<sub>2</sub>-HB(pz)<sub>3</sub>}]

AUTHOR(S): Burns, Ian D.; Hill, Anthony F.; White, Andrew J. P.; Williams, David J.; Wilton-Ely, James D. E. T.

CORPORATE SOURCE: Department of Chemistry, Imperial College of Science Technology and Medicine, London, SW7 2AY, UK

SOURCE: Organometallics (1998), 17(8), 1552-1557

CODEN: ORGND7; ISSN: 0276-7333

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB The reactions of [RuHCl(CO)(PPh<sub>3</sub>)<sub>3</sub>], [Ru(SnPh<sub>3</sub>)Cl(CO)(PPh<sub>3</sub>)<sub>2</sub>], or [RuH(CO)(NCMe)<sub>2</sub>(PPh<sub>3</sub>)<sub>2</sub>]BF<sub>4</sub> with K[HB(pz)3] (pz = pyrazol-1-yl) provide the crystallog. characterized complex [RuH(CO)(PPh<sub>3</sub>)<sub>2</sub>{η<sub>2</sub>-HB(pz)3}], thermolysis of which proceeds via loss of phosphine and formation of [RuH(CO)(PPh<sub>3</sub>)<sub>2</sub>{η<sub>3</sub>-HB(pz)3}]. The thiocarbonyl analog [RuH(CS)(PPh<sub>3</sub>)<sub>2</sub>{η<sub>2</sub>-HB(pz)3}] is similarly obtained by the reaction of [RuHCl(CS)(PPh<sub>3</sub>)<sub>3</sub>] and K[HB(pz)3], thermolysis of which provides [RuH(CS)(PPh<sub>3</sub>)<sub>2</sub>{η<sub>3</sub>-HB(pz)3}]. Hydride metathesis in CHCl<sub>3</sub> of this species provides [RuCl(CS)(PPh<sub>3</sub>)<sub>2</sub>{η<sub>3</sub>-HB(pz)3}]. [RuH(CS)(PPh<sub>3</sub>)<sub>2</sub>{η<sub>2</sub>-H<sub>2</sub>B(bta)2}] (bta = benzotriazolyl) results from the reaction of [RuHCl(CS)(PPh<sub>3</sub>)<sub>3</sub>] with K[H<sub>2</sub>B(bta)2]. The hydride-bridged dinuclear complex [RuCu(μ-H)(CO)(PPh<sub>3</sub>)<sub>2</sub>{η<sub>3</sub>-HB(pz)3}]PF<sub>6</sub> results in high yield from the reaction of [RuH(CO)(PPh<sub>3</sub>)<sub>2</sub>{η<sub>2</sub>-HB(pz)3}], with [Cu(NCMe)<sub>4</sub>]BF<sub>4</sub>. The σ-Ph complex [OsPh(CO)(PPh<sub>3</sub>)<sub>2</sub>{η<sub>2</sub>-HB(pz)3}] results from the reaction of [OsPhCl(CO)(PPh<sub>3</sub>)<sub>2</sub>] with K[HB(pz)3] and is cleanly converted with heating to [OsPh(CO)(PPh<sub>3</sub>)<sub>2</sub>{η<sub>3</sub>-HB(pz)3}].

REFERENCE COUNT: 59 THERE ARE 59 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 7 OF 11 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1997:441104 CAPLUS  
DOCUMENT NUMBER: 127:144294  
TITLE: Synthesis and reactivity of [Ru{HB(pz)3}{P(C<sub>6</sub>H<sub>11</sub>)<sub>3</sub>}Cl(OCH<sub>2</sub>R)] (pz = pyrazolyl, R = H or Me)  
AUTHOR(S): Gemel, Christian; Kickelbick, Guido; Schmid, Roland; Kirchner, Karl  
CORPORATE SOURCE: Institute of Inorganic Chemistry, Technical University of Vienna, Vienna, A-1060, Austria  
SOURCE: Journal of the Chemical Society, Dalton Transactions: Inorganic Chemistry (1997), (12), 2113-2117  
CODEN: JCDTBI; ISSN: 0300-9246  
PUBLISHER: Royal Society of Chemistry  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB [Ru{HB(pz)3}(cod)Cl] (1) (cod = cycloocta-1,5-diene) reacted with P(C<sub>6</sub>H<sub>11</sub>)<sub>3</sub> (≥1 equiv) in boiling DMF to give the highly air-sensitive intermediate [Ru{HB(pz)3}{P(C<sub>6</sub>H<sub>11</sub>)<sub>3</sub>}Cl(DMF)] which, on exposure to air in either ethanol or methanol as the solvent, was converted to the ruthenium(III) complexes [Ru{HB(pz)3}{P(C<sub>6</sub>H<sub>11</sub>)<sub>3</sub>}Cl(OCH<sub>2</sub>R)] (R = Me 2a or H 2b) in good yields. 2B was characterized by x-ray crystallog. (triclinic, space group P.hivin.1, R = 0.038). Treatment of 2a or 2b with L = MeCN, pyridine, CO, P(OMe)<sub>3</sub>, or PMe<sub>3</sub> in CH<sub>2</sub>C<sub>12</sub> afforded the (diamagnetic) ruthenium(II) compds. [Ru{HB(pz)3}{P(C<sub>6</sub>H<sub>11</sub>)<sub>3</sub>}(Cl)L] (3-7). Most remarkably, 2a or 2b reacted also with terminal alkynes HC.tplbond.CR (R = Ph, CO<sub>2</sub>Et, Bu or SiMe<sub>3</sub>) giving the neutral vinylidene complexes [Ru{HB(pz)3}{P(C<sub>6</sub>H<sub>11</sub>)<sub>3</sub>}Cl(=C=CHR)] (8-11). Preliminary results of a study of the catalytic activity of 2 are also presented. Thus, 2a and 2b catalyzed the dimerization of some terminal alkynes HC.tplbond.CR (R = Ph, CO<sub>2</sub>Et or SiMe<sub>3</sub>).

REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 8 OF 11 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1997:402118 CAPLUS  
DOCUMENT NUMBER: 127:144256  
TITLE: Hydride, dihydrogen, dinitrogen and related complexes of ruthenium containing the ligand hydrotris(pyrazolyl)borate. X-ray crystal structure of [{HB(pz)3}Ru(η<sub>2</sub>-H<sub>2</sub>)(dippe)][BPh<sub>4</sub>] (dippe = 1,2-bis(diisopropylphosphino)ethane)  
AUTHOR(S): Jimenez Tenorio, Manuel; Jimenez Tenorio, Miguel Angel; Puerta, M. Carmen; Valerga, Pedro  
CORPORATE SOURCE: Dept. de Ciencia de Materiales e Ingenieria Metalurgica y Quimica Inorganica, Facultad de

Ciencias, Universidad de Cadiz, Aptdo. 40, 11510,  
Puerto Real, Cadiz, Spain  
Inorganica Chimica Acta (1997), 259(1-2), 77-84  
CODEN: ICHAA3; ISSN: 0020-1693

SOURCE:

Elsevier

PUBLISHER:

Journal

DOCUMENT TYPE:

English

LANGUAGE:

AB  $[\{HB(pz)3\}RuCl(PPh_3)2]$  reacts with one equivalent of dippe (1,2-bis(diisopropylphosphino)ethane) in toluene to yield  $[\{HB(pz)3\}RuCl(dippe)]$ . This compound reacts with NaBH<sub>4</sub> in MeOH furnishing the monohydride  $[\{HB(pz)3\}RuH(dippe)]$ , whereas  $[\{HB(pz)3\}RuH(PPh_3)2]$  was obtained by reaction of  $[RuHCl(PPh_3)3]$  with K[HB(pz)3]. Both monohydride complexes are protonated by HBF<sub>4</sub>·Et<sub>2</sub>O at -80° to give the corresponding dihydrogen adducts  $[\{HB(pz)3\}Ru(H_2)(dippe)]^+$  and  $[\{HB(pz)3\}Ru(H_2)(PPh_3)2]^+$ , as inferred from longitudinal relaxation time (T<sub>1</sub>) and 1J(H,D) measurements. The latter complex is unstable and decomps. at room temperature, but the former is a stable species which does not rearrange to the dihydride form when the temperature is raised. The x-ray crystal structure of  $[\{HB(pz)3\}Ru(H_2)(dippe)][BPh_4]$  was determined (monoclinic, space group P21/c, R = 0.057). The dihydrogen ligand in this compound is labile, and readily replaced by a range of neutral donor mols., yielding the corresponding complexes  $[\{HB(pz)3\}Ru(L)(dippe)][BPh_4]$  (L = CO, CNBu<sub>2</sub>, Me<sub>2</sub>CO, THF, N<sub>2</sub>). There is also supporting evidence for the formation of a paramagnetic RuIII methoxide complex,  $[\{HB(pz)3\}Ru(OMe)(dippe)][BPh_4]$ . All compds. were characterized by IR, NMR and microanal.

REFERENCE COUNT: 39 THERE ARE 39 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 9 OF 11 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1997:60763 CAPLUS

DOCUMENT NUMBER: 126:69230

TITLE:

Syntheses and Characterization of Hydrotris(1-pyrazolyl)borate Dihydrogen Complexes of Ruthenium and Their Roles in Catalytic Hydrogenation Reactions

AUTHOR(S):

Chan, Wai-Chung; Lau, Chak-Po; Chen, Yu-Zhong; Fang, Yi-Qun; Ng, Siu-Man; Jia, Guochen

CORPORATE SOURCE:

Department of Applied Biology Chemical Technology, Hong Kong Polytechnic University, Kowloon, Hong Kong

SOURCE:

Organometallics (1997), 16(1), 34-44  
CODEN: ORGND7; ISSN: 0276-7333

PUBLISHER:

American Chemical Society

DOCUMENT TYPE:

Journal

LANGUAGE:

English

AB New hydrotris(1-pyrazolyl)borate complexes of ruthenium were synthesized. Reaction of RuCl(HB(pz)3)(PPh<sub>3</sub>)<sub>2</sub> (1) with NaBH<sub>4</sub> in ethanol produced the yellow monohydride complex RuH(HB(pz)3)(PPh<sub>3</sub>)<sub>2</sub> (2). Protonation of 2 with HBF<sub>4</sub>·Et<sub>2</sub>O in dichloromethane gave the mol. dihydrogen complex [Ru(HB(pz)3)(PPh<sub>3</sub>)<sub>2</sub>(H<sub>2</sub>)]BF<sub>4</sub> (3). Reactions of 3 with L produced [Ru(HB(pz)3)(PPh<sub>3</sub>)<sub>2</sub>(L)]BF<sub>4</sub> (L = CH<sub>3</sub>CN (4), H<sub>2</sub>O (5), N<sub>2</sub>). 3 Could be regenerated by reactions of 4 or 5 with pressurized H<sub>2</sub>. Deprotonation of 3 occurred with NEt<sub>3</sub> or H<sub>2</sub>O under hydrogen pressure. Treatment of 1 with LiBF<sub>4</sub> in acetonitrile produced the bis-solvento complex [Ru(HB(pz)3)(PPh<sub>3</sub>)(CH<sub>3</sub>CN)<sub>2</sub>]BF<sub>4</sub> (6). Heating a THF/CH<sub>3</sub>CN (9/1) solution of 1 at 60° gave RuCl(HB(pz)3)(PPh<sub>3</sub>)(CH<sub>3</sub>CN) (7). Reaction of 7 with NaBH<sub>4</sub> in THF produced the yellow monohydride complex RuH(HB(pz)3)(PPh<sub>3</sub>)(CH<sub>3</sub>CN) (8). Acidification of the monohydride 8 with HBF<sub>4</sub>·Et<sub>2</sub>O yielded [Ru(HB(pz)3)(PPh<sub>3</sub>)(CH<sub>3</sub>CN)(H<sub>2</sub>)]BF<sub>4</sub> (9). Both complexes 4 and 6 are active catalysts for the hydrogenation of olefins in either anhydrous or hydrous THF. Enhanced catalytic activities were observed in the presence of water or NEt<sub>3</sub>. Deuterium was incorporated into the catalytic hydrogenation products when D<sub>2</sub>O was present in the reaction mixture. The enhanced catalytic activity in the presence of water, and incorporation of deuterium in the hydrogenation products, could be best explained with mechanisms which involve dihydrogen complexes.

REFERENCE COUNT: 73 THERE ARE 73 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L15 ANSWER 10 OF 11 DISSABS COPYRIGHT (C) 2005 ProQuest Information and

ACCESSION NUMBER: 93:45769 DISSABS Order Number: AAR9317299

TITLE: REACTIVITY OF (OXO) (PHOSPHINE) RUTHENIUM(IV) AND  
 (AQUA) (PHOSPHINE) RUTHENIUM(II) COMPLEXES:  
 MECHANISMS OF THE OXIDATION OF ORGANIC SUBSTRATES AND  
 LIGAND SUBSTITUTION (ORGANIC SUBSTRATE OXIDATION, OXO(  
 PHOSPHINE) RUTHENIUM(IV), (AQUA) (PHOSPHINE)  
 ) RUTHENIUM(III))

AUTHOR: ACQUAYE, JOHN HENRY [PH.D.]; TAKEUCHI, KENNETH J. [advisor]  
 CORPORATE SOURCE: STATE UNIVERSITY OF NEW YORK AT BUFFALO (0656)  
 SOURCE: Dissertation Abstracts International, (1993) Vol. 54, No.  
 4B, p. 1953. Order No.: AAR9317299. 169 pages.

DOCUMENT TYPE: Dissertation

FILE SEGMENT: DAI

LANGUAGE: English

ENTRY DATE: Entered STN: 19930920

Last Updated on STN: 19930920

AB The reactivity of the oxo(phosphine)ruthenium(IV) complexes,  $\text{Ru}(\text{bpy})\text{O}\text{PR}_3$  (where bpy = 2,2'-bipyridine and PR<sub>3</sub> = P(C<sub>6</sub>H<sub>5</sub>)<sub>3</sub>, P(p-C<sub>6</sub>H<sub>4</sub>OCH<sub>3</sub>)<sub>3</sub>, P(p-C<sub>6</sub>H<sub>4</sub>CH<sub>3</sub>)<sub>3</sub>, P(p-C<sub>6</sub>H<sub>4</sub>F)<sub>3</sub>, P(C<sub>6</sub>H<sub>5</sub>)<sub>2</sub>P(C<sub>6</sub>H<sub>4</sub>CF)<sub>2</sub>, and P(p-C<sub>6</sub>H<sub>4</sub>CF)<sub>3</sub>) in the oxidation of sulfides, sulfoxides, alcohols and tertiary anilines was investigated. In addition, the aqua ligand substitution by acetonitrile in the (aqua) (phosphine) ruthenium(II) complexes was investigated in aqueous medium.

For the oxidation of sulfides to sulfoxides, an excellent correlation ( $R^2 = 0.99$ ) was obtained between  $\log(k_{\text{H}}/k_{\text{H}'})$  and the  $\sigma$  values for the substituents of para-substituted thioanisoles ( $\rho = -1.56$ ). For the oxidation of sulfoxides to sulfones, a good correlation ( $R^2 = 0.98$ ) was obtained between  $\log(k_{\text{H}}/k_{\text{H}'})$  and the  $\sigma_{\text{sp}+}$  values for the substituents of para-substituted methyl phenyl sulfoxides ( $\rho = -0.42$ ). In addition, the kinetic isotope effect for the oxidation of thioanisole and methyl-<sup>3</sup>D phenyl sulfide produced  $k_{\text{H}}/k_{\text{D}} = 1.14$ , and the oxidation of methyl phenyl sulfoxide and methyl-<sup>3</sup>D phenyl sulfoxide resulted in an inverse isotope effect of  $k_{\text{H}}/k_{\text{D}} = 0.64$ . Hammett correlations of  $\log(k_{\text{H}}/k_{\text{H}'})$  versus  $\Sigma\sigma$  (where  $\sigma$  is the Hammett substituent constant for each of the para-substituents on the triphenylphosphine ligands) also show linear relationships. The slopes of these plots gave  $\rho = 0.49$  ( $R^2 = 0.99$ ) for the oxidation of thioanisole and  $\rho = 0.37$  ( $R^2 = 0.99$ ) for the oxidation of methyl phenyl sulfoxide by the  $\text{Ru}(\text{bpy})\text{O}\text{PR}_3$  complexes. The results of all our experiments suggest that the rate determining step in the oxidation of thioanisole by  $\text{Ru}(\text{bpy})\text{O}\text{P}(\text{C}_6\text{H}_5)_3$  involves primarily single electron transfer, whereas the rate determining step of the oxidation of methyl phenyl sulfoxide involves primarily an  $S\dot{\sigma}$  mechanism.

There were not good correlations for plots of  $\log(k_{\text{H}}/k_{\text{H}'})$  versus the Hammett substituent constants  $\sigma$ ,  $\sigma_{\text{sp}+}$  or  $\sigma_{\text{sp}-}$  for the oxidation of the para-substituted benzyl alcohols by  $\text{Ru}(\text{bpy})\text{O}\text{P}(\text{C}_6\text{H}_5)_3$ . However, the plot of  $\log(k_{\text{H}}/k_{\text{H}'})$  versus  $\sigma_{\text{sp}}$  (where  $\sigma_{\text{sp}}$  is the free radical stabilization constant), gave an excellent correlation with  $\rho = -0.57$ , ( $R^2 = 0.99$ ) for the oxidation of the para-substituted benzyl alcohols by  $\text{Ru}(\text{bpy})\text{O}\text{P}(\text{C}_6\text{H}_5)_3$  in methylene chloride. From these and other results, we propose a reaction pathway for the oxidation of benzyl alcohol by (oxo)ruthenium(IV) complexes which involves a partial hydrogen atom abstraction from the benzylic carbon in the rate determining step.

The features observed in the demethylation of the tertiary anilines by the  $\text{Ru}(\text{bpy})\text{O}\text{PR}_3$  complexes resemble those of the cytochrome P-450 type oxygenation. (Abstract shortened by UMI.)

ACCESSION NUMBER: 93:32621 DISSABS Order Number: AAR9309867

TITLE: PROTON-COUPLED ELECTRON TRANSFER AND MULTIELECTRON OXIDATIONS IN COMPLEXES OF RUTHENIUM AND OSMIUM

AUTHOR: DOVLETOGLOU, ANGELOS [PH.D.]; MEYER, THOMAS J. [advisor]

CORPORATE SOURCE: THE UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL (0153)

SOURCE: Dissertation Abstracts International, (1992) Vol. 54, No. 2B, p. 809. Order No.: AAR9309867. 285 pages.

DOCUMENT TYPE: Dissertation

FILE SEGMENT: DAI

LANGUAGE: English

ENTRY DATE: Entered STN: 19930722

Last Updated on STN: 19930722

AB My doctoral research concerns the mechanism of proton-coupled electron transfer over an extended pH range. The impetus for this study derives from the importance of such processes in biological systems. These processes between **ruthenium** and **osmium** complexes and hydroquinones have been studied by using spectrophotometric methods and cyclic voltammetry. Elucidation of the mechanistic details has been attempted by using isotopic labelling, kinetic analyses, and numerical simulation of complex kinetic schemes.

The coordination and redox chemistry of polypyridyl-acetylacetoneato and -oxalato complexes of **ruthenium** and the role of ancillary ligands in defining the properties of Ru\$sp{\rm IV}\$O complexes were explored. These studies represent the first attempt to probe possible 2e\$sp-\$ oxidation by a Ru\$sp{\rm IV}\$O/Ru\$sp{\rm II}\$OH\$sb2\$ couple. Using a test ligand in the coordination sphere the net result of the acac\$sp-\$ ligand affecting the electron density at the metal center was examined. It was found that acac\$sp-\$ can act as a \$\sigma\$ donor, \$\pi\$ donor, and \$\pi\$ acceptor.

The synthesis and X-ray crystal structure of trans-(Ru\$sp{\rm VI}\$O)(tpy)(O)\$sb2\$(H\$sb2\$O) (ClO\$sb4\$)\$sb2\$ are described. The complexes trans-(Ru(tpy)(O)\$sb2\$(H\$sb2\$O))\$sp{2+}\$ and trans-(Ru(tpy)(O)\$sb2\$(CH\$sb3\$CN))\$sp{2+}\$ have been characterized by using UV-vis, \$sp{1}H\$ NMR, FTIR, and resonance Raman spectroscopy, and electrochemical techniques. Comparisons with the redox potentials for related couples and a thermodynamic analysis based on related **ruthenium** and structurally equivalent complexes of **osmium** revealed a number of features that will be useful in the rational design of metal ion redox catalysts.

A complex mechanistic study of a novel *cis*-directed four-electron oxidation by trans-Ru\$sp{\rm VI}\$O\$sb2\$ complexes involving double O-atom transfer to a single substrate was undertaken. The kinetics of nitrogen atom transfer reactions of an Os\$sp{\rm VI}\$nitrido complex with phosphines was studied. A reactivity model was developed for metal-oxo epoxidation catalysts and **cytochrome P-450**, based on the kinetics and mechanisms of olefin epoxidation by Ru\$sp{\rm IV}\$O and trans-Ru\$sp{\rm VI}\$O\$sb2\$.

The ((bpy)\$sb2\$(O)Ru\$sp{\rm V}(\mu-O)Ru\$sp{\rm V})(bpy))\$sp{4+}\$ complex represents the only well-defined molecular catalyst for water oxidation. This work describes the synthesis, characterization, and redox chemistry of ((tpy)(C\$sb2\$O\$sb4\$)Ru\$sp{\rm III})(\mu-O)Ru\$sp{\rm III}\$(C\$sb2\$O\$sb4\$)(tpy) and ((tpy)(CO\$sb3\$)Ru\$sp{\rm III})(\mu-O)Ru\$sp{\rm III}\$(CO\$sb3\$)(tpy)). In acidic solutions the oxalato ligand is lost providing a convenient synthetic route to the *cis*-(tpy)(H\$sb2\$O)\$sb2\$Ru\$sp{\rm III}\$(\mu-O)Ru\$sp{\rm III}\$(H\$sb2\$O)\$sb2\$(tpy))\$sp{4+}\$.

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<input type="checkbox"/>	L3	L2 and (cavity  pocket? coordinat\$)	142
<input type="checkbox"/>	L2	L1 and apo\$	187
<input type="checkbox"/>	L1	(myoglobin hemoglobin hemeoxygenase catalase cytochrome ferritin) same (rhodium Rh ruthenium Ru palladium Pd)	437

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